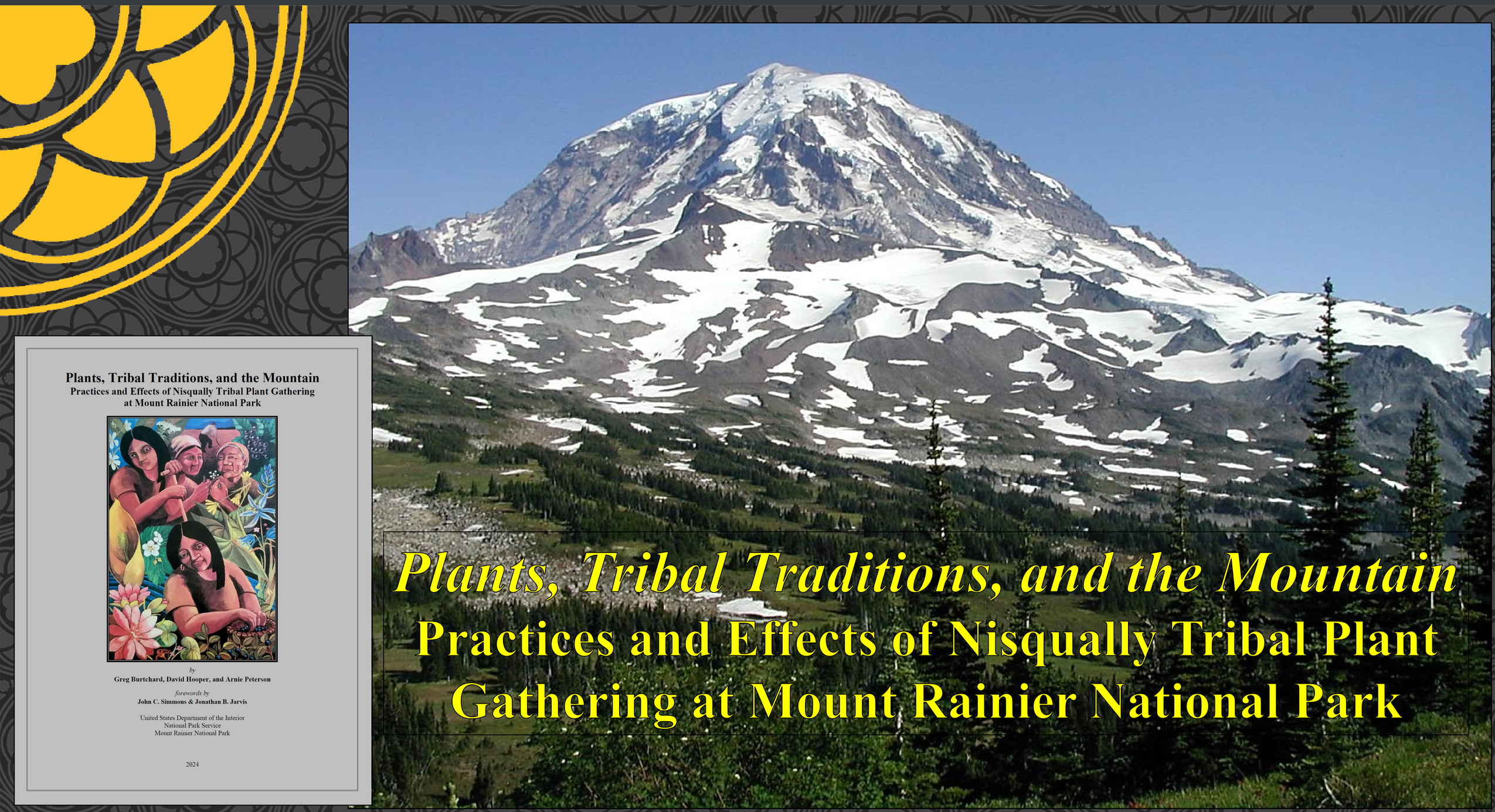


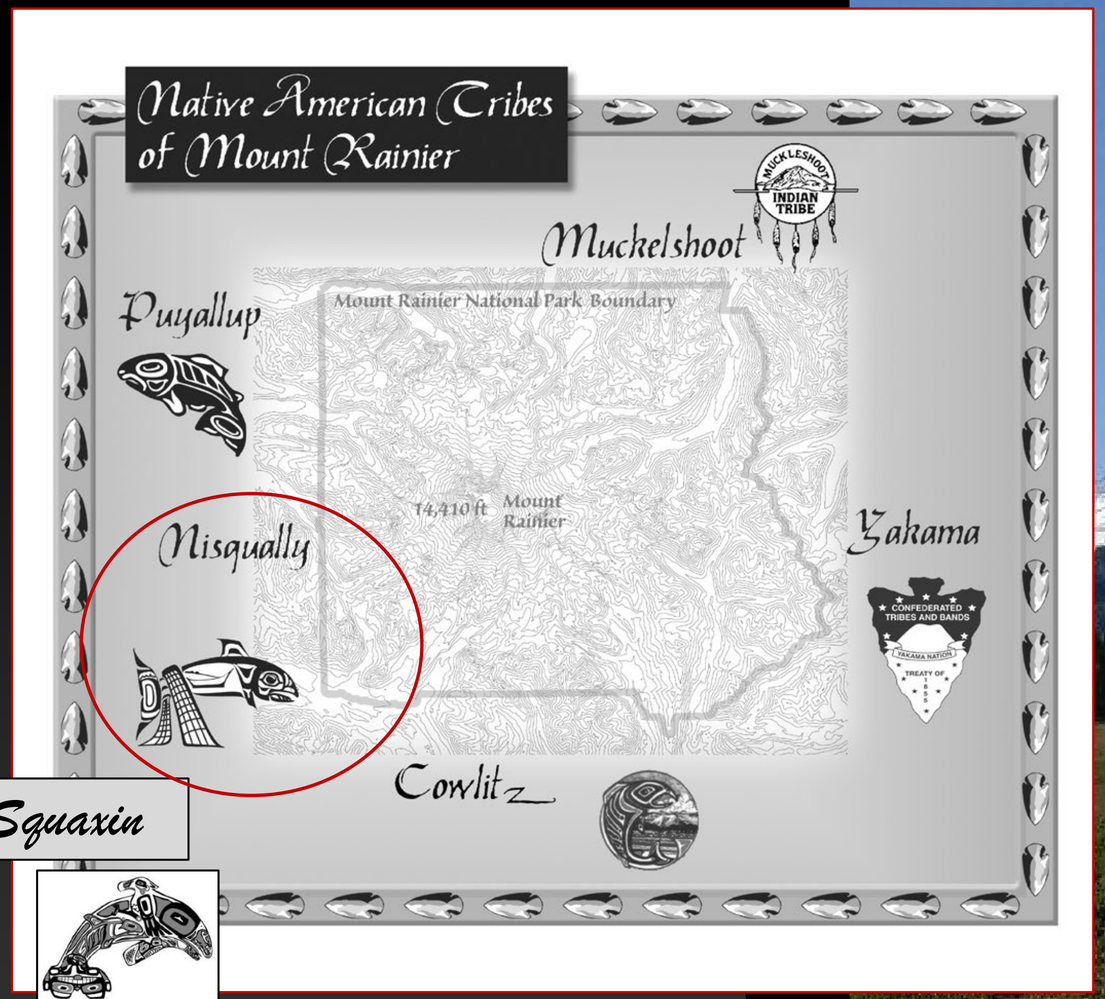
Plants, Tribal Traditions, and the Mountain
Practices and Effects of Nisqually Tribal Plant Gathering at Mount Rainier National Park

by
Greg Burtchard, David Hooper, and Arnie Peterson

forewords by
John C. Simmons & Jonathan B. Jarvis

United States Department of the Interior
National Park Service
Mount Rainier National Park

2024



In 1998

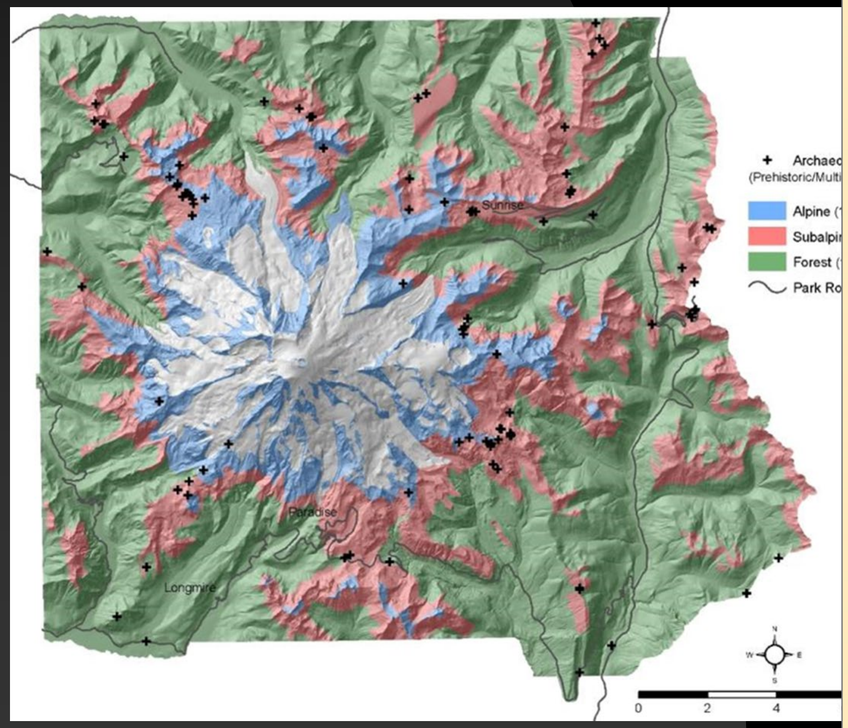
Mount Rainier National Park & Nisqually Indian Tribe agree to reinstate traditional plant gathering activities lost to National Park Service regulations in the early 1900s

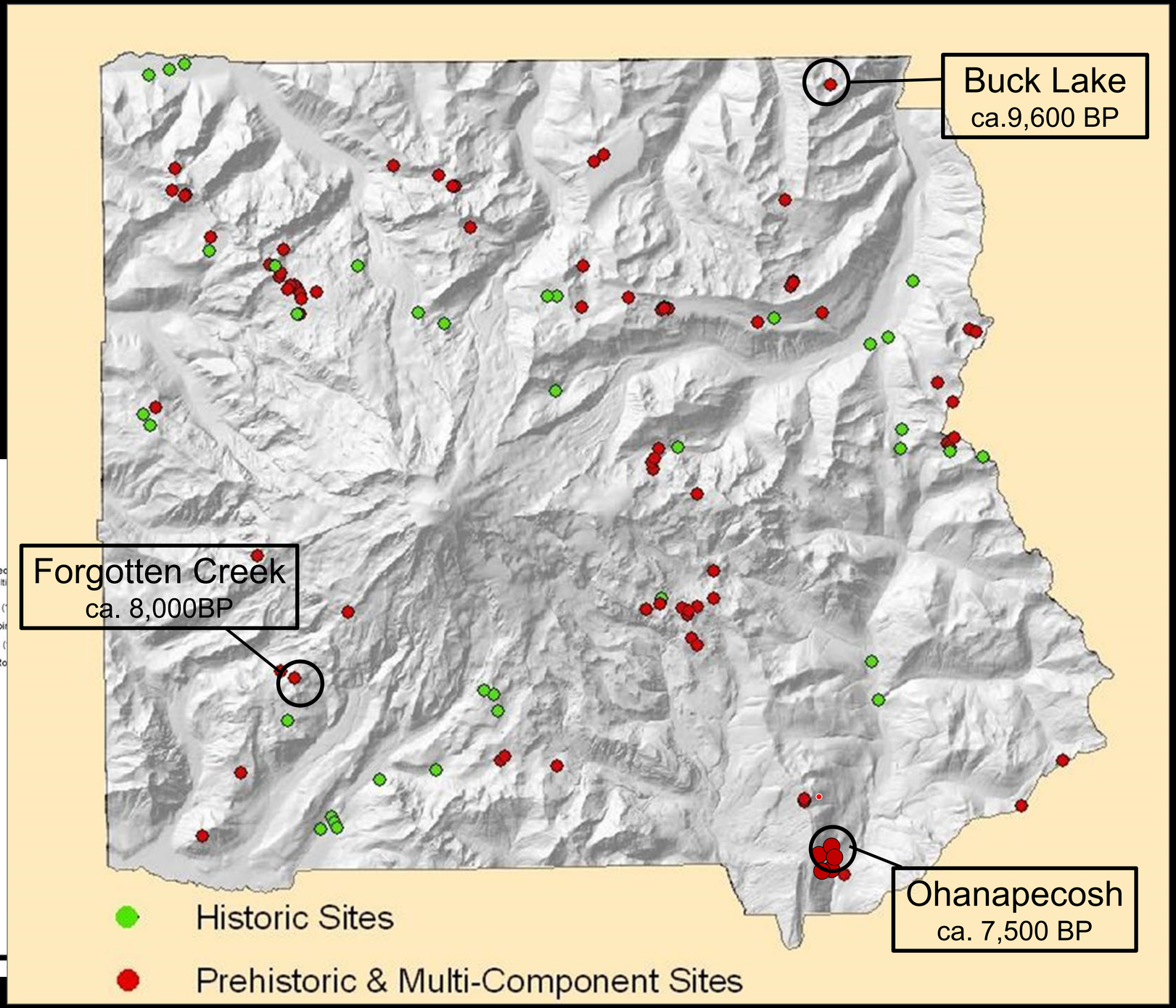
Long-term Indigenous Use of the Mountain is not in Question

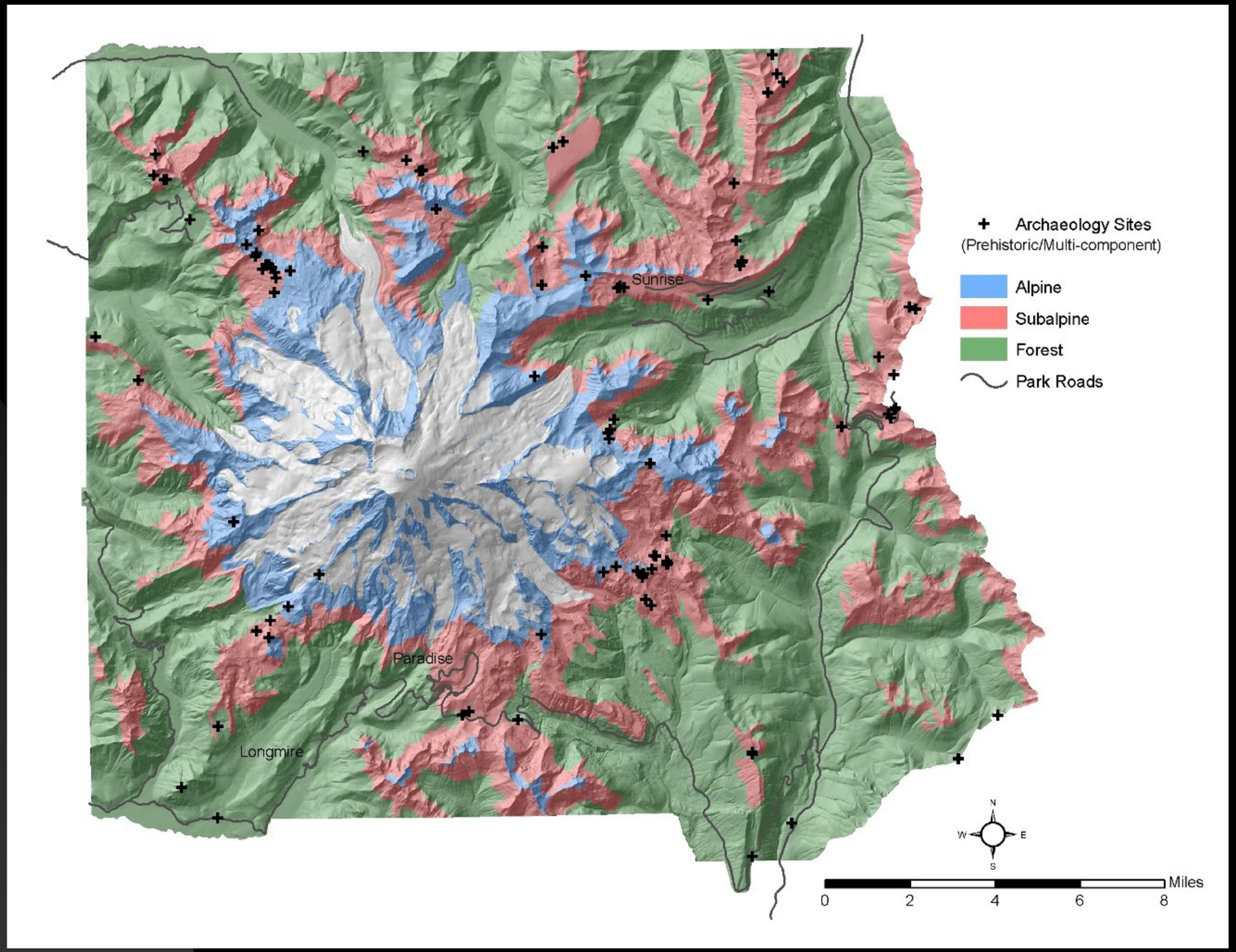
The 2016 Archaeological Record:

104 Precontact Sites & Isolated Finds (68 in Subalpine/Alpine Context 36 in Forest settings)

Earliest Dating to 9,600 years ago







Long-term precontact foraging and site distribution reflect patterned ecological productivity on the mountain



Precontact foragers were attracted to upper elevation subalpine & alpine settings because they were rich in subsistence and material resources during the warm season.

Lowland maritime forests provided other more dispersed, but almost year-round, medicinal and material resources of use to Indigenous people.

Isaac Stevens and the Treaties of 1854-55

Treaty of Medicine Creek – 1854
Treaty of Point Elliot – 1855
Treaty with the Yakama – 1855

In compensation for ceding claims to lands on Mount Rainier and Elsewhere

Article 3 of the Treaty of Medicine Creek:

Reserves to Indigenous people:

The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said Indians in common with all citizens of the Territory, and of erecting temporary houses for the purpose of curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses on open and unclaimed lands…

- Early NPS Days 1899 -1910
- Hunting Prohibited: 1915-1917
- Plant Gathering Prohibited: 1936
- Civil Rights Activism: 1960s-1974
- Limited Plant Gathering Reinstated with Nisqually Indian Tribe: 1998

Sluiskin 1915





Huckleberry Gathering



Mount Rainier & Paradise Meadows in 1888

The Nisqually-Mount Rainer Joint Traditional Plant Gathering Agreement & Research

and

The Future of Indigenous Gathering on Mount Rainier

- **Nisqually-Mount Rainier plant gathering agreement – 1998-2003**
- Nisqually-Mount Rainier research project – 2004-2015
- The future of Indigenous gathering activities on Mount Rainier

Bear Grass (Basket Grass, Squaw Grass, Pine Lily) *Xerophyllum tenax.*
Outer Leaves
Annual Quantity: twenty (20) 33-gal. plastic bags

Berries (Blueberry, Huckleberry, Highbush Cranberry, Wild Gooseberry, Salmonberry, Serviceberry, Strawberry) *Vaccinium, Viburnaum, Ribes, Rubus, Amelanchier,* and *Fragaria* ssp.
Fruit
Annual Quantity: unlimited for personal use.

Cascara *Rhamnus purshiana*
Bark
Quantity: ten (10) 33-gal. plastic bags

Western Red Cedar *Thuja plicata.*
Wood, bark, and roots
Annual Quantity: Wood and bark: submit individual requests to Park Superintendent for consideration.
Roots: one (1) 33-gal plastic bag (3 bundles/bag, no more than 2 roots/tree.

Devil's Club *Oplopanax horridum.*
Bark, root, wood, fruit
Annual Quantity: ten (10) 33-gal. plastic bags

Maidenhair Fern *Adiatum pedatum.*
Entire plant.
Annual Quantity: ten (10) 33-gal. plastic bags

Western White Pine *Pinus monticola.*
Wood
Annual Quantity: submit individual requests to Park Superintendent for consideration.

Pipsissewa (Princess Pine, Prince's Pine) *Chimaphila umellata, C. menziesii.*
Leaves and roots
Annual Quantity: five (5) 33-gal. plastic bags.

Spruce *Picea sitchensis*
Roots
Annual Quantity: roots from five (5) trees (no more than two roots/tree)

Tiger Lily *Lilium columbianum.*
Roots
Annual Quantity: one (1) 33-gal. plastic bag.

Western Yew *Taxus brevifolia*
Wood
Annual Quantity: submit individual requests to Park Superintendent for consideration.





Gathering Begins in 1999



Park-protected Beargrass Habitat in Sunset Park

Commercial Beargrass “Harvest”



Nisqually-Mount Rainier Plant Gathering Agreement Contested in 2001

The Agreement was ***Stuck*** by Termination of the MOU in 2003

Revived as a joint Nisqually/MORA Research Project in 2004

The Nisqually-Mount Rainer Joint Traditional Plant Gathering Agreement & Research

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Why should we expect hunting & gathering traditions rooted in the prehistoric through early historic-period past to be conservative?



Bundled Beargrass Stems

Mount Rainier – Nisqually
Traditional Plant Gathering Research Project

Focus on the three most sought-after plants





Bark-peeled Cedars



Pipsissewa





Beargrass





Beargrass (*Xerophyllum tenax*):

Traditional Uses:

- Dried (turns white) and used for basket structural integrity & decoration.
- Often used with cedar bark and/or cedar & spruce roots.
- Decorations often express personal or social identity.

Traditional Gathering Methods:

- Late summer.
- Site selected for abundance, plant size, and vigor – typically openings in forest cover.
- Select longer leaves.
- Outer-center leaves pulled individually from stem – up to 15 per plant.
- Leaves from about 10 plants bundled for drying.





Beargrass Observation Methods:

- Establish collection plots & observe with Nisqually gatherers from 2007-2012 with additional experimental harvest in 2010
- Monitor changes to % beargrass ground cover.
- Measure changes to stem diameter, leaf length, & plant number
- Monitor % changes in associated plant species



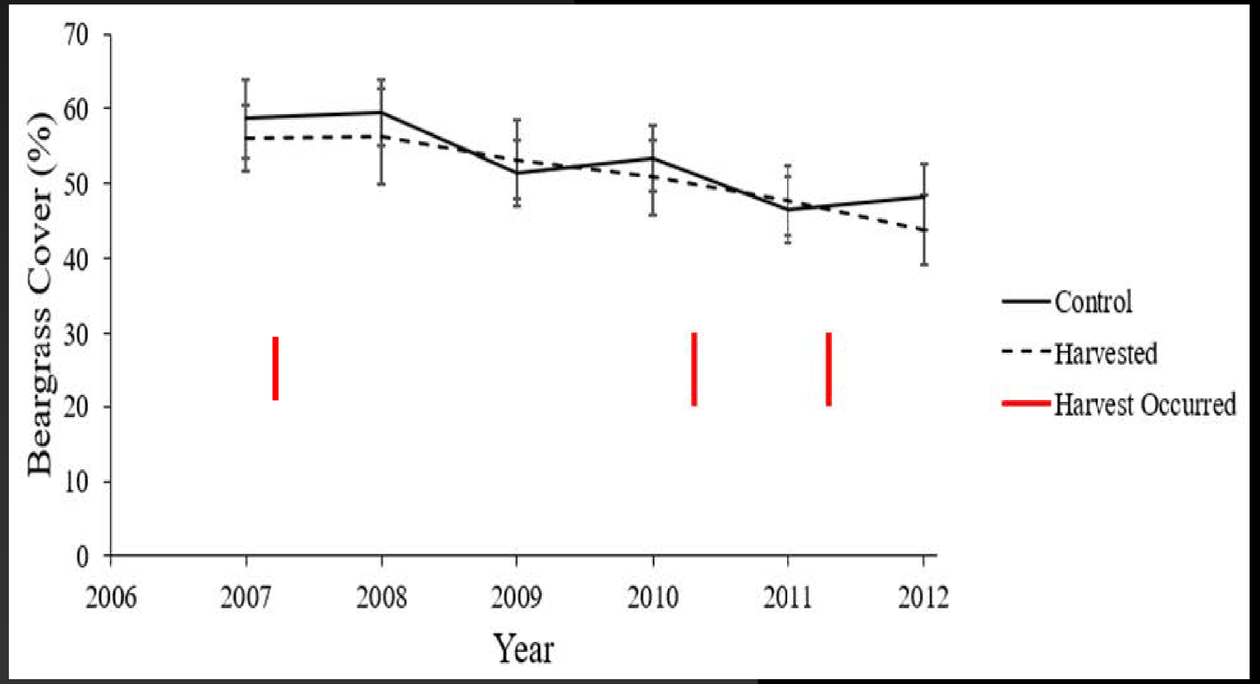
Before Harvest



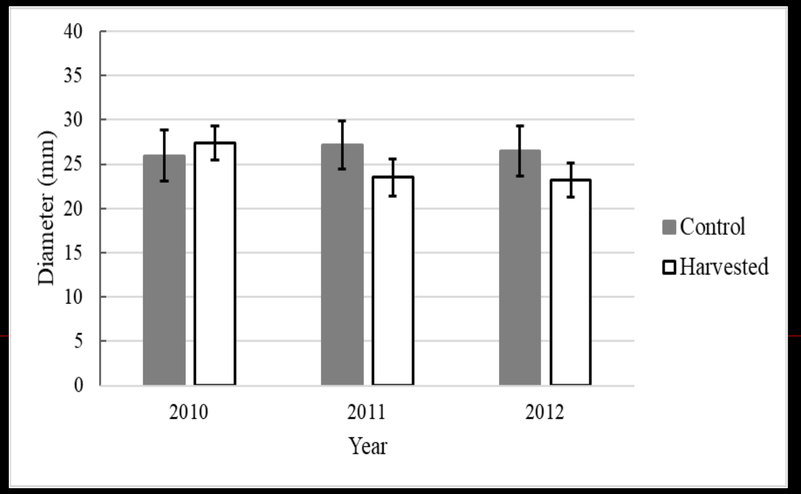
After Harvest

Beargrass Gathering Impact Results:

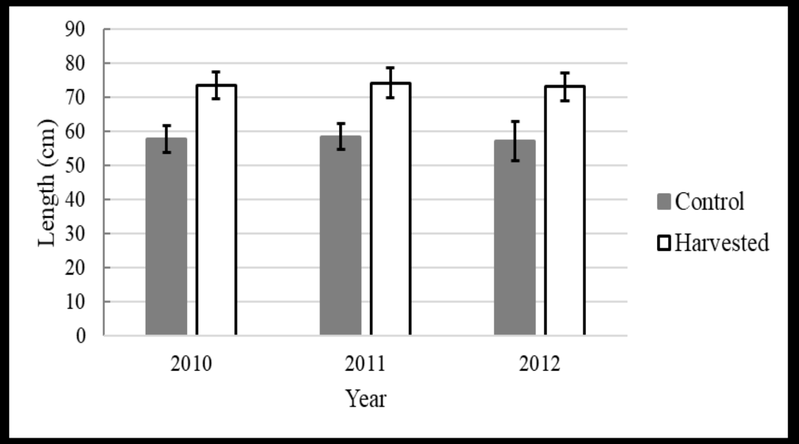
No observable effects. Recommend monitoring to ensure cumulative effects over multiple years do not affect beargrass productivity. Rotate to new areas as needed.



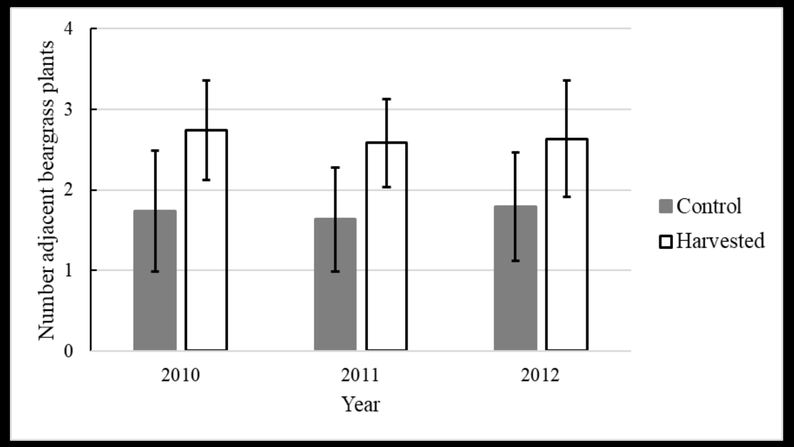
Beargrass Cover



Stem diameter



Leaf Length



Abundance near marked plants





Pipsissewa (*Chimaphila umbellata & C. menziesii*):

Traditional Uses:

- Leaf & root infusions for kidney & liver function, colds, ease childbirth, reduce pain, treat gonorrhea, maintain overall health, blood purification, and general pick-me-up.
- Applied externally for sore eyes, muscles, and backs.
- Has antimicrobial properties.

Traditional Gathering Methods:

- Site selected for abundance –generally openings in lower-mid elevation forest settings.
- Harvested throughout the year.
- Break off leaf stems at ground level to avoid damaging subsurface rhizomes –never pull.
- Always leave 3 to 5 multi-leaf stems per patch.
- Flowering stems never collected.

Pipsissewa Observation Methods:



- Permanent collection plot with two 20x30m control & gathering areas.
- Harvest v. Control growth patterns observed using 120 randomly selected 1x1m plots along twelve 30m transects.
- Monitor % changes in relative abundance, vegetative cover, and stem density (count of
- leaf stems per unit area).
- Tribal gathering 2010-2012 & experimental harvests 2013 & 2015.



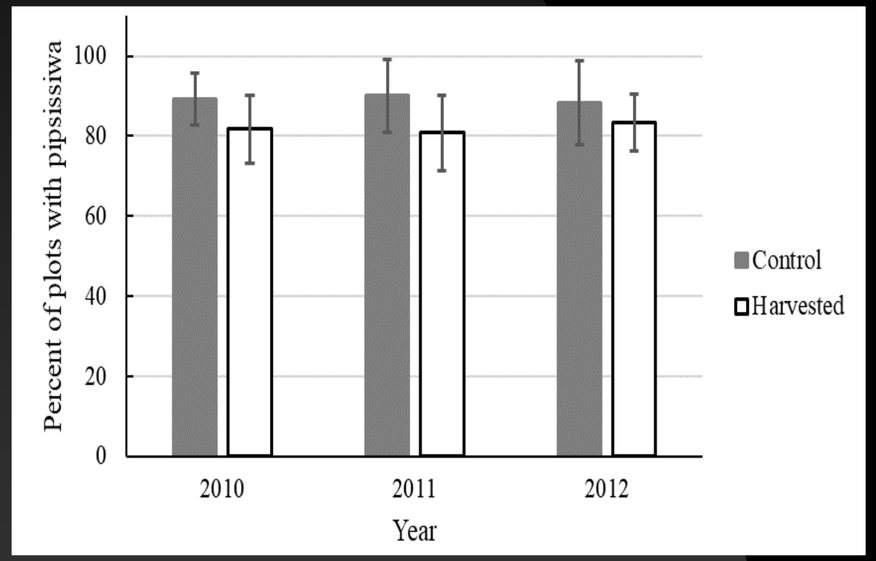
Nested quadrat



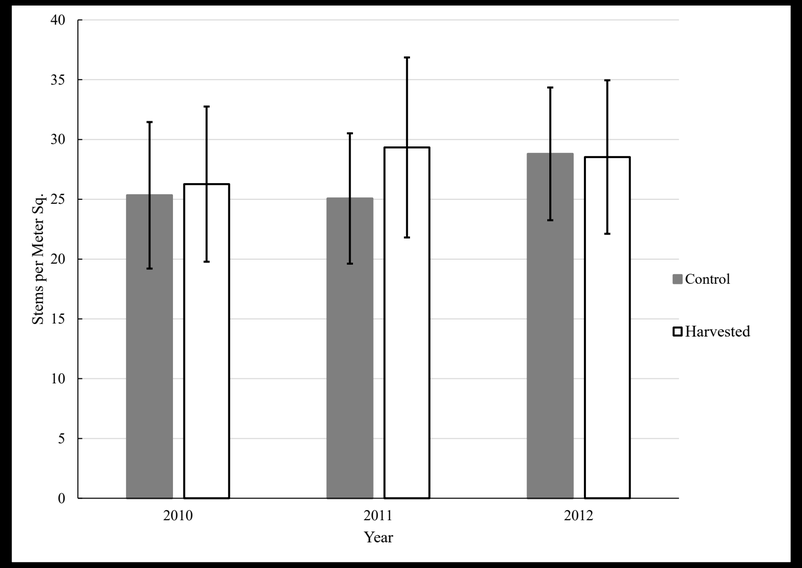
Experimental Harvest
Collected Stems

Pipsissewa Gathering Impact Results:

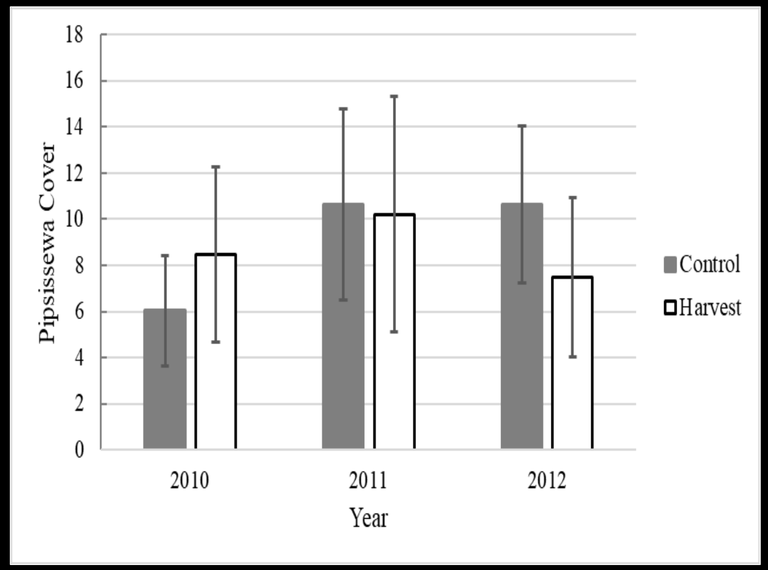
No significant effect to relative abundance or stem count. Variation in pipsissewa vegetative cover suggests a need for routine monitoring with relocation to new gathering area for 2-3 year recovery period following an observed decline.



Relative Abundance



Stem Count



Vegetative cover



Bark-peeled Western Red Cedar

Western Red Cedar (*Thuja Plicata*):

Traditional Uses:

- *Inner bark* used for basketry, water-resistant clothing, and cordage.
- *Wood* for house planks, posts, storage boxes, canoes.
- *Bough & bark* infusions treat colds, coughs & sore throat.
- *Buds* chewed to relieve toothache pain

Traditional Cedar-bark Gathering Methods:

- Spring harvest preferred to ease bark removal.
- Younger trees with limited branching preferred; ideally on a sloped setting.
- Horizontal cut made near base of the tree not to exceed 1/3 of tree diameter.
- Bark strip pulled-up to tapering break point.
- Inner bark removed, rolled, and dried for later use.

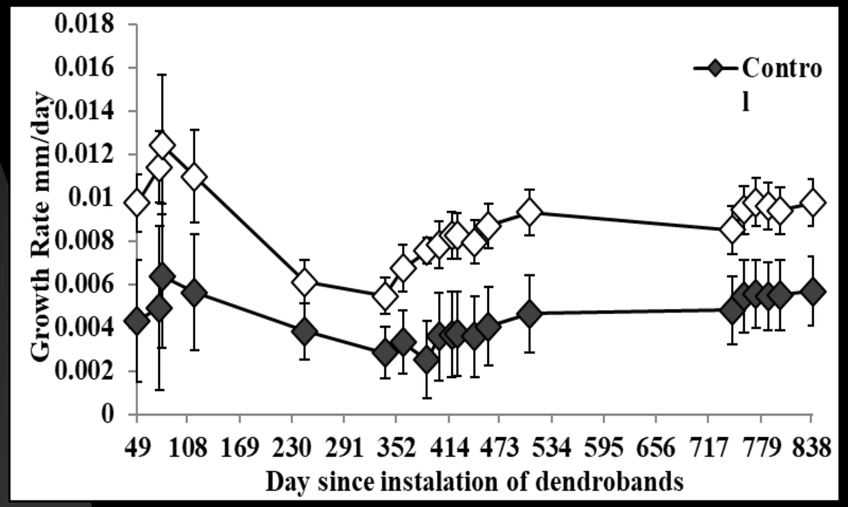


Bark-peelingTools

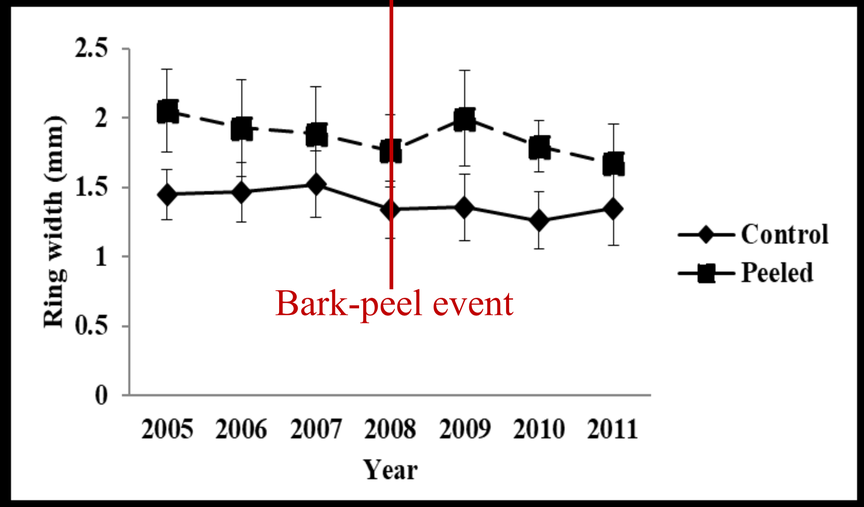


Bark-Peeled Cedar Observation Methods:

- 1) Variation in trunk diameter: Dendrometer bands attached to 8 bark-peeled and 8 adjacent control trees to measure relative changes in trunk diameter over three growing seasons.
- 2) Variation in growth ring width: Core samples removed from all 16 test trees to measure growth rate over a six-year period before and after the 2008 bark removal event.



Dendroband Measurements



Tree Ring Measurements

Cedar Bark-Peeling Impact Results:

No discernable cumulative effect on tree survival or growth rate.

The Quandary & The Epiphany

Developed over millennia, the primary mechanism serving to ensure continuing plant vigor lies in the tendency of traditional gathering methods to recognize and fall within individual species' capacity to tolerate damage linked to the gathering process.





Bark-peeled Cedars



Pipsissewa





Beargrass

Additional Traditionally Used Plants & Long-term Sustainability

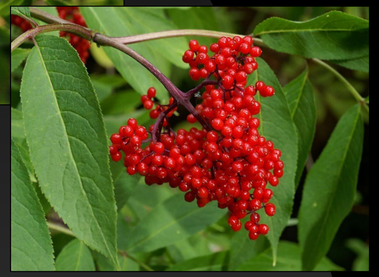


Cascara

Sitka Spruce







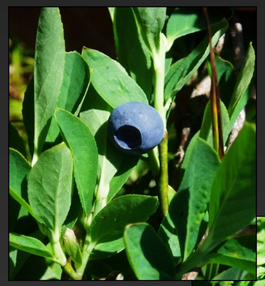
Elderberry

Maidenhair Fern





Devil's Club



Huckleberry







Pacific Yew



Strawberry



Gray's Lovage

Additional Traditionally Used Plants & Long-term Sustainability

Scientific Name	Common Name
Adiantum aleuticum	northern maidenhair fern*
Amelanchier alnifolia	western serviceberry†
Fragaria vesca & F. virginiana	strawberry*
Oplopanax horridus	devil's club*
Lilium columbianum	Columbia lily†
Picea sitchensis	Sitka spruce*
Pinus monticola	western white pine*
Frangula purshiana	Cascara*
Rubus spp.	raspberry, thimbleberry, salmonberry and blackberry*
Sambucus cerulea & S. racemosa	blue and red elderberry†
Taxus brevifolia	Pacific yew*
Vaccinium spp.	blueberries and huckleberries*
Viburnum edule	highbush cranberry*
Ligusticum canbyi & L. grayi	lovage†
Gaultheria shallon	salal†

* Plants included in original Nisqually/Mount Rainier agreement.

† Observed & commonly known traditionally gathered plants.

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and

The *Future* of Indigenous Gathering on Mount Rainier

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- Nisqually-Mount Rainier research project – 2005-1915
- **The future of Indigenous gathering activities on Mount Rainier**



Continuing NPS – Tribal Cooperation & Active Involvement

Two Enabling Mechanisms:

- Treaty-reserved Resource Gathering Rights

and/or

- 36 CFR §2.6: Plant Gathering by Federally Recognized Tribes



Thanks for the Memories

Link to full book: Plants, Tribal Traditions, and the Mountain